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alleviate a vibration of the thing caused by applying said ultrasonic wave to the thing, and
wherein a duty ratio of a carrier wave is 80% or less.--

REMARKS

In this Amendment, Applicants have amended claims 1, 2, 5 – 8, 12, 19, and 20 in order to more appropriately define the present invention, and added new claims 24 – 42 to protect additional aspects of the present invention. In accordance with the requirements of 37 C.F.R. § 1.121(c)(1), Applicants provide a marked-up version of the amendments made to the claims and the specification in the attached Appendix designated “Version of Claims with Markings to Show Changes Made.” Applicants submit that the amendments made to the claims do not constitute new matter.

Regarding the Office Action:

In the Office Action, the Examiner required affirmation of Applicants’ elected invention; rejected claims 2, 7, 8, 12, 19, and 20 under 35 U.S.C. § 112, 2nd paragraph, as indefinite; and rejected claims 1 – 10, 12, 19, and 20 under 35 U.S.C. § 102(e) as anticipated by Puskas (U.S. Patent No. 6,313,565B1). As a result of this Amendment, claims 1 – 10 and 12 – 42 remain pending, with claims 13 – 18, and 21 – 23 withdrawn from consideration as drawn to a nonelected invention.

Regarding the Election / Restriction Requirement:

In response to the Examiner’s requirement on item 4, pp. 2 – 3, of the Office Action, Applicants affirm the September 27, 2002 oral election to prosecute Group I, claims 1 – 10, 12, 19, and 20, as thus characterized by the Examiner.

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Regarding the rejection of claims 2, 7, 8, 12, 19, and 20 under 35 U.S.C. § 112, 2nd ¶:

Regarding the rejection of claims 2, 7, 8, 12, 19, and 20 under 35 U.S.C. § 112, 2nd paragraph, Applicants have amended the claims as follows:

Re: Claim 2: Applicants have amended this claim to delete the phrase “pulse-like” and to replace it with “pulsed,” thereby addressing the Examiner’s concerns.

Re: Claim 7: Applicants have amended this claim to further define the present invention, thereby clarifying the determination/specification of time intervals to address the Examiner’s concerns.

Re: Claims 8 and 12: Applicants have amended these claims to include proper antecedent basis.

Re: Claim 19: Applicants have amended this claim to further define the present invention, thereby clarifying the determination/specification of time intervals to address the Examiner’s concerns.

Re: Claim 20: Applicants have amended this claim to delete the word “continuously” and to add a recitation defining the time interval, thereby muting any alleged inconsistency with base claim 1.

Applicants therefore respectfully deem the rejection of claims 2, 7, 8, 12, 19, and 20 overcome. Claims 2, 7, 8, 12, 19, and 20 now fully comply with the requirements of 35 U.S.C. § 112, 2nd paragraph, and Applicants accordingly request withdrawal of that rejection.

Regarding the rejection of claims 1 – 10, 12, 19, and 20 under 35 U.S.C. § 102(e):

Applicants respectfully traverse the rejection of claims 1 – 10, 12, 19, and 20 under 35 U.S.C. § 102(e) as anticipated by Puskas.

Applicants point out that in order to properly establish that Puskas anticipates Applicants’ claimed invention under 35 U.S.C. § 102(e), each and every element of each of the claims in

issue must be found, either expressly described or under principles of inherency, in that single reference. Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” *See M.P.E.P. § 2131*, p. 2100-69, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Regarding the 35 U.S.C. § 102(e) rejection, Puskas does not teach each and every element of Applicants’ present invention as claimed.

The Examiner has alleged that “Puskas teaches a method as claimed. See entire reference, especially Figures, 6, 8B, 8C and the related description and Summary of the Invention” (Office Action, p. 4). Applicants respectfully disagree with the Examiner’s allegations.

Embodiments consistent with Applicants’ invention provide “a washing method of causing no damage to the microscopic patterns formed on processed things ... without decreasing the efficiency in removing particles attached to the surface of the processed things...” (Applicants’ specification, p. 4, ll. 11 – 17). Applicants’ claims, namely independent claims 1 and 6, recite an ultrasonic washing method such that “said ultrasonic wave is turned on and off repeatedly, wherein a turn-off period is an alleviation period necessary to alleviate a vibration of the thing caused by applying said ultrasonic wave to the thing” (claim 1), or that “said first ultrasonic wave and said second ultrasonic wave are alternatively applied to the thing to alleviate a vibration caused by applying one of said first ultrasonic wave and said second ultrasonic wave to the thing” (claim 6).

In contrast to the present invention, Puskas instead “utilizes multiple frequency sound in liquids to improve the cleaning or processing effect” (Puskas, Abstract). As such, Puskas does not improve object cleaning while minimizing damage thereon. For example, Puskas’ “multiple frequency invention” (col. 3, l. 26) works by “by stringing together different frequencies from

the same frequency range for at least the lifetime of a sound wave in the liquid, the sound intensity of these closely related frequencies builds up to a higher value than with any of the prior art multiple frequency systems" (col. 3, ll. 58 – 62). In addition, Puskas' "signal generator drives the transducer array to produce the intense sound energy characterized by a series string of different frequencies within one of the continuous frequency ranges" (col. 4, ll. 43 – 46). As such, Puskas does not disclose at least that "said ultrasonic wave is turned on and off repeatedly, wherein a turn-off period is an alleviation period necessary to alleviate a vibration of the thing caused by applying said ultrasonic wave to the thing" (Applicants' claim 1), or at least that "said first ultrasonic wave and said second ultrasonic wave are alternatively applied to the thing to alleviate a vibration caused by applying one of said first ultrasonic wave and said second ultrasonic wave to the thing" (Applicants' claim 6).

The Examiner referred Applicants to Puskas' Figs. 6, 8B, and 8C (and the related descriptions thereof) in an attempt to support his allegations. Turning to Puskas' Fig. 6, however, Applicants note that "FIG. 6 shows the addition of quiet times 81 into a typical AM pattern 80 of this invention" (col. 13, ll. 9 – 10). These "quiet times" are not equal to periods of zero-amplitude, as Puskas does not indicate that "quiet times 81" are zero-amplitude pauses (such as Applicants' claimed "turn-off period"), and thus they are not equivalent to Applicants' claimed invention (see previous paragraph). Puskas' Fig. 6 illustrates "bursts of frequency range #1" 82 containing quiet times 81 and smaller bursts of sound 85 all within bursts 82. In the description of Fig. 6, for example, Puskas goes on to disclose that

"[t]he invention produces *continuously changing sound* at frequencies in a first range of frequencies 82 before jumping to frequencies in a second range of frequencies 83. Quiet times 81 are inserted into the continuously changing frequency signal produced by the generator within a frequency range to break up

the signal into smaller bursts of sound 85 for the purpose of optimizing certain processes" (col. 13, ll. 11 – 19, emphasis added).

The frequency ranges applied in Puskas are clearly not the same as Applicants' claimed "turn-off period is an alleviation period necessary to alleviate a vibration of the thing" (Applicants' claim 1), or "said first ultrasonic wave and said second ultrasonic wave [being] alternatively applied to the thing to alleviate a vibration" (Applicants' claim 6).

In addition, to address Puskas' Figs. 8B and 8C, Applicants note that Puskas' staircase frequency (Fig. 8b) or random frequency (Fig. 8C) distributions do not illustrate a "turn-off period" (Applicants' claim 1) or "alternatively applied" (Applicants' claim 6) ultrasonic waves anticipatory of the present invention. Puskas discloses that "FIG. 8C shows an example of a random staircase function that can be produced" (col. 13, ll. 50 – 51) and "FIG. 8B is drawn to show a constant sweep rate of the staircase function" (col. 14, ll. 15 – 16). Neither of these Figures indicate that the ultrasonic wave is turned off or that multiple ultrasonic waves are alternatively applied to the object to be cleaned.

Thus, since Puskas does not disclose each and every element of Applicants' independent claims, Puskas does not anticipate Applicants' claimed invention. In addition to Puskas not anticipating the present invention, Puskas does not disclose an identical invention, let alone in as complete detail as contained in Applicants' independent claims. Applicants submit that the Examiner has not met these essential requirements of anticipation for a 35 U.S.C. § 102(e) rejection.

In response to the Examiner's rejection of dependent claims 2 – 5, 7 – 10, 12, 19, and 20: "Examiners are reminded that a dependent claim is directed to a combination including everything recited in the base claim and what is recited in the dependent claim. It is this

combination that must be compared with the prior art, exactly as if it were present as one independent claim.” M.P.E.P. § 608.01(n)(III), p. 600-77.

Therefore, since Applicants have shown above that independent claims 1 and 6 are allowable, Applicants also submit that dependent claims 2 – 5, 7 – 10, 12, 19, and 20 are also allowable at least by virtue of their respective dependency from allowable base claims 1 and 6.

In summary, since Puskas does not disclose each and every element of Applicants’ present invention, Puskas does not anticipate Applicants’ claims. Therefore, the rejection is improper and should be withdrawn.

Regarding the new claims:

Finally, Applicants have introduced new claims 24 – 42 to provide coverage for other aspects of Applicants’ invention. Applicants submit that new claims 24 – 42 are supported by the originally filed application, and therefore do not constitute new matter. Furthermore, Applicants submit that new independent claims 24, 29, 34, 38, and 42, are allowable, at least because they contain recitations similar to those described above regarding independent claims 1 and 6. Dependent claims 25 – 28, 30 – 33, 35 – 37, and 39 – 41 are also allowable, at least because of their respective dependency from base claims 24, 29, 34, 38, and 42.

Conclusion:

In making various references to the specification and drawings set forth herein, it is understood that Applicants are in no way intending to limit the scope of the claims to the exemplary embodiments described in the specification and illustrated in the drawings. Rather, Applicants expressly affirm that they are entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

For the reasons articulated herein, Applicants submit that claims 1 – 10, 12, 19, 20, and 24 – 42 are allowable. In view of the foregoing, Applicants request reconsideration of the

application and submit that the rejections detailed above should be withdrawn. A favorable action is requested.

Should the Examiner continue to dispute the patentability of the claims after consideration of this Amendment, Applicants invite the Examiner to contact Applicants' undersigned representative by telephone to discuss any remaining issues.

Please grant any extensions of time under 37 C.F.R. § 1.136 required in entering this response. If there are any fees due under 37 C.F.R. § 1.16 or 1.17, which are not enclosed, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our deposit account 06-0916.

Respectfully submitted,

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GARRETT & DUNNER, L.L.P.

Dated: January 31, 2003

By: Richard V. Burgujian Reg. No. 31,744
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APPENDIX TO AMENDMENT OF January 31, 2003

Version of Claims with Markings to Show Changes Made

AMENDMENTS TO THE CLAIMS:

Please cancel amend claims 1, 2, 5 – 8, 12, 19, and 20 as follows:

1. (Twice Amended) An ultrasonic washing method of washing a thing to be washed by supplying ultrasonic-wave-applied cleaning fluid to the thing, said ultrasonic washing method comprising applying [said] an ultrasonic wave to [said] a cleaning fluid in such a manner that said ultrasonic wave is turned on and off repeatedly, wherein a turn-off period is an alleviation period necessary to alleviate a vibration of the thing caused by applying said ultrasonic wave to the thing.

2. (Amended) The ultrasonic washing method according to claim 1, wherein said ultrasonic wave is superimposed on a [pulse-like] pulsed carrier wave.

5. (Amended) The ultrasonic washing method according to claim [1] 2, wherein a duty ratio of the carrier wave is 80% or less.

6. (Amended) A washing method comprising:
a first step of washing a thing to be washed by applying a first ultrasonic wave, and
a second step of washing the thing by applying a second ultrasonic wave, wherein said first ultrasonic wave and said second ultrasonic wave are alternatively applied to the thing to alleviate a vibration caused by applying one of said first ultrasonic wave and said second ultrasonic wave to the thing.

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7. (Twice Amended) The washing method according to claim 6, wherein said first ultrasonic wave and said second ultrasonic wave are applied to the thing to be washed at predetermined time intervals, and the predetermined time intervals are intervals necessary to alleviate a vibration of the thing caused by applying said first ultrasonic wave and said second ultrasonic wave to the thing.

8. (Amended) The washing method according to claim 6, wherein [the] an oscillation frequency of each of said first and second ultrasonic [wave] waves is 0.6 MHz or higher.

12. (Amended) The washing method according to claim 9, wherein an oscillation frequency of each of said first and second ultrasonic [wave] waves is 0.6 MHz or higher.

19. (Amended) The method according to claim 1, wherein said ultrasonic wave is turned on and off repeatedly at specific time intervals, and the specific time intervals are intervals necessary to alleviate a vibration of the thing caused by applying said ultrasonic wave to the thing.

20. (Amended) The method according to claim 7, wherein said first [step] ultrasonic wave and said second [step] ultrasonic wave are repeated [continuously] at a specific time interval and the specific time interval is an interval necessary to alleviate a vibration of the thing caused by applying said first ultrasonic wave and said second ultrasonic wave to the thing.

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